some way towards justifying the faith that the physicists' ways of thinking and explaining will suffice. And, as we have seen, it is one of the advances to which Needham pins his hopes. But the field, as a morphogenetic agent, remains hopelessly vague. Says Needham : [c] The field is a dynamic description of a spatio-temporal activity, not a mere geometrical picture of a momentary time-slice in the organism's history/ And this is the total issue of his lengthy discussion of * fields '. Well, it is all to the good, no doubt, that processes should replace mere spatial distributions; that the magic lantern is superseded by the moving picture. But in itself this improved way of thinking does nothing to explain morphogenesis and the growth of organization.

Ludwig Bertalanify, the author of *Modern Theories of Development* (1933) and of other works of recognized authority, devotes a chapter to * fields '. He illustrates the need to postulate a field of force of a determinate kind governing the production of a particular form, by reference to the specially clear case of the mushroom. In the great majority of instances of development of specific form we are dealing with a complex of tissues and cells of varied chemical composition. In the case of the mushroom we have a tissue, complex in the chemical sense, no doubt, but, it would seem, chemically uniform; a mass of hyphae or threads all growing in a tangled mass that seems as devoid of order as a handful of bits of string all rumpled up together and thrown in a heap. Yet this mass, as it continues to grow, shapes itself into the

familiar specific form of great regularity and symmetry. * The development of the form of the mushroom cannot be conceived as a splitting up of determinants. Apart from the fact that the material involved is quite homogeneous, growth